Carmen Johnson

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Chatham Co.
Permit # 19-05

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BROOKS COMPOST FACILITY
1195 BEAL ROAD
GOLDSTON, NC 27252
919-837-5914
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Mr. Ted Lyon
NCDENR
1646 Mail Service Center
Raleigh, NC 27699-1646

Dear Ted:

I am writing to request a compost demonstration permit for the composting of polylactic acid waste (PLA) at my compost site in Goldston, NC. These materials are production scraps being generated by UNIFI Industries in Yadkinville, NC. Dr. Bob Rubin will be working on this program.

As background, PLA is a long chain polymer manufactured by Cargill Dow, LLC and is sold under the name NatureWorks. It is a renewably based material derived from corn. The attached FAQ describes the material and its production process in more detail. Also, attached is an MSDS. UNIFI is producing textiles from PLA for high-end applications. They are currently in the start up phase of production and would like to recycle their waste via composting vs. sending materials to the landfill. Assuming that the start up is successful, UNIFI may generate up to 50 tons annually of waste that could be composted.

NatureWorks PLA is a carbon-based material and contains no heavy metals (see the attached Waste Analysis). It will completely biodegrade when composted and blended with nitrogen containing materials. During the past 24 months, more than 1,000,000 lbs. of PLA plant scraps have been successfully composted by NRG Industries in Bloomington, MN. Also, this material has been certified as a "compostable plastic" in Europe, Japan, and

the US. This means that it meets scientifically based standards ASTM D6400-99 "specifications for compostable plastics in the US and comparable ones in Asia and Europe."

Right now, UNIFI has approximately 8,000 lbs of scraps in forms that they wish to compost:

- 500 lbs. of "polymer bleed" which is generated in the initial production phase. It resembles "strands" of spaghetti that have congealed together into the form of a patty or cake. These may need to be chipped to compost readily, in much the same way as wood.
- 3000 lbs of "loose fluff", which resembles "fishing ling". I believe that this material can be added directly to the piles as it has an extremely high surface area.
- 4000 lbs of "waste chip", which consists of resin pellets, used to scour the production lines prior to processing. These pellets are approximately 1/8 inch size. These should be able to be incorporated directly into the piles.

The scope of work we are proposing is as follows:

Processing:
We propose to develop 3 demonstration windrows (each 12 feet wide and 6 feet high). One windrow will contain 5% PLA scraps (by volume), blended with food scarps and other nitrogen containing materials. The second windrow will contain 10% PLA scraps and the third will have 20% PLA. All windrows will be composted and cured for 15 weeks. Further, the windrows will be managed so that the temperatures will remain above 131 degrees F. for 15 consecutive days. Also, the windrows will be turned five times during this period by a scarab windrow turner, per NC regulations.

Testing:
The materials will be tested for NPK and regulated metals. Additionally, temperature and times will be monitored and recorded along with any turning or processing activities.

Disposition:
Once the finished product is tested and found to be safe for unrestricted use, it will be sold. If the material does not meet NC regulations, it will be landfilled.

Reporting:
A final report will be published containing all the details, evaluation and testing results.

I look forward to your approval of this effort.

Sincerely,

Dean Brooks